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COUNTRY REPORTS ON THE CURRENT STATUS AND ISSUES OF SURVEYING, CHARTING AND MAPPINC AT THE NATIONAL LEVEL: NEEDS AND REQUIREMENTS VERSUS REALITY IN THE REGION

Surveying and mapping activities in Mongolia

Paper submitted by Mongolia**

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** Prepared by D. Gangsukh and J. Sanjaajamts, State Administration of Geodesy and Cartography, IkH Toyruu str. 4, 210644 Ulaanbaator, Mongolia.

I. THE MONGOLIA

Mongolia is a developing country in Central Asia. Its area is 1565,5 thousand sq.km. It is far from seas and oceans. Different regions of the country differ considerably from each other by their structures of relief and elevations. The medium elevation of the territory is 1580 m above the sea level, and highest mountain summit reaches 4374 m. The lowest area in Mongolia is 560 m.

In Mongolia there are 3440 rivers and 3000 lakes, but most of them are situated in the northern part of the territory.

Such physiographic traits of Mongolia determine severe nature, sharp continental climate and frequently unfavourable weather conditions.

Mongolia is the 17th country by its territory size, and it has about 2,1 million people. It means that there are about 0,8 inhabitants per a square kilometre.

For the past 70 years Mongolia has been a socialist state under the influence of the former Soviet Union. In 1990 its people have chosen democracy and market economy as a new policy seeking economic development.

II. Mongolian Geodetic Service

Before the establishing of the Mongolian Geodetic Service /MGS/ in 1970 several bureau and groups of surveying and mapping tasks of some ministries and boards used to work for their needs.

The Mongolian Government has decided to establish the State Administration of Geodesy and Cartography /SAGC/ in 1970, in order to concetrate surveying and mapping activities in the country.

In 1991, the SAGC has been mandated by the Governmental decree with the management of surveying and mapping infrastructure of the country, with the preparation, planning implementation of technical projects and inspection of all kinds of work in the field of surveying and mapping.

Nowadays, the Mongolian Geodetic Service consists of SAGC- a main body, two semi-autonomous enterprises and three field parties.

Since MGS had won status there began a new history of surveying and mapping activities in Mongolia, and for military and civil purposes they are working for provide surveying and mapping products, essentially topographic base maps in the industrial and urban areas.

In the period of review we used traditional technology of mapping, based on techniques from Russia and other former socialist countries. Our national specialists in MGS are mainly trained in above-mentioned countries and in a home-country.

III. CURRENT STATUS OF SURVEYING AND MAPPING

Since Mongolia had won its independence in 1924 there began a new history of physiogeographic and other studying of territory of Mongolia and some thematic map production activities for the public and educational needs. Those maps and atlases had been compiled in Mongolia and published in Germany.

In 1932 there was established a mapping department at the Ministry of the Mongolian military.

Concerning the Mongolian defence requirements the former Soviet Union had constructed a geodetic control network covering a whole territory of the country with the maps at the scales of 1:1 000 000, 1:500 000, 1:200 000 and 1:100 000. These maps had been based on the 1942 coordinating systems of Krassovsky ellipsoid and Gauss conformal cylindrical projection.

In the period of review MGS has done density of the geodetic control network, renewed second order levelling network by repeated levelling and developed national gravimetric network.

MGS had done revision of the topographic maps of the scales of 1:100 000 and 1:200 000 of the whole territory of the country, and has edited and published an Album of the geographic names og Mongolia.

Up to now 33% at the whole territory of Mongolia had been covered with the topographic maps at the scale of 1:50 000 and 17% with topographic maps at the scale of 1:25 000 by stereotopographic methods.

Large scales (1:5 000, 1:2 000, 1:1 000 and 1:500) of topographic maps made for urban areas.

MGS began to use airborne-laboratory AN-30 for the aerial photography since 1980, which helps for a future development of photogrammetry and remote sensing technology.

One of the examples of the effective uses of space imagery in mapping purpose was completed in 1980-s Complect of thematic maps at the scale 1:1 000 000 /7 kind/.

Today MGS has edited and published more then 200 various maps and atlases for the public, cultural, scientific needs and educational purposes.

In 1991, we have published the National Atlas of Mongolia, and it is an integrated fundamental scientific cartographic work, generalizing present-day scientific knowledge about the country's nature and population, and it intended for solving both scientific-theoretical and practical tasks.

IV. DEMANDS ON THE FUTURE DEVELOPMENT OF THE SURVEYING AND MAPPING ACTIVITIES

Surveying and mapping are fundamental tools for the development and many other development activities in Mongolia. The production of maps, especially medium scale maps

will increase in accordance with the high depend on a precise, up-to-date, spatially referenced data base for the socioeconomic development in Mongolia, the utilisation, exploration and exploitation of its rich natural resources.

The demand for cadastral surveying will also be increased in Mongolia as a result of changes of land policy which was outlined in the Constitution and other relevant laws.

The main activities of MGS in near future are:

1. The preparation and ratification by Parliament "Land Survey Act";
2. The establishment of geodetic control survey by GPS;
3. The production and revision of National topographic map series of Mongolia;
4. The research in computer aided mapping technology;
5. The establishment of land information and cadastral system.

The future development of surveying and mapping activities in Mongolia needs international cooperation and technical and financial supports.

V. INSTITUTIONAL FACTORS

Efficient institutions are necessary for the implemention of new mapping policy and management.

1/. Organizational procedures

A proper organizational framework is a precursor for the implementation of new tasks of surveying and mapping. To provide a best framework for establishing modern surveying and mapping management, a status and forms of organization of SAGC must be renewed.

The activities of SAGC must be regulated through the Land Survey Act.

We believe that private sector will be also important part to play, both as a builder and user of surveying and mapping information.

2/. Information and Communications

A new policy of mapping in Mongolia will be directed to form an information system for computer aided mapping technology. So we will bring it into action through the government organizations, in collaboration with other systems on informations of natural resources and a land survey.

Exchanging of scientific and technological informations in the field of surveying and mapping, receiving of cheaper informations are most important to Mongolia as it is a comparatively backward country in economy and science technology.

3/. Training

Surveying and mapping development of any country depends on its trained personnel. All the people employed by the state surveying and mapping organization of Mongolia had obtained their education in former socialist countries.

Modern science and technology demand us to improve their knowledge and skills with the level of today's development. For Mongolia, it becomes most important to train and to prepare our personnel in the field of new and up-to-date techniques and technology. For this we need some help from the UN, other international organisations and highly developed countries. We're seeking to collaborate with them on the principals of mutual respect and understanding.

4/. Scientific and Research work

Scientific and research work in the field of surveying and mapping is on its first step in Mongolia. Our proposals of future expanding research, land mapping and raising their level are introduced to our government.

We'll be very grateful if colleagues of our profession would support our request to set up "an Asian and Pacific Regional Laboratory on deciphering aerial photographs" in Mongolia, concerning specific conditions of the country's physical geography.

5/. Technical Assistances and Cooperation

Mongolian Geodetic Service will take first assistances of donor-countries and international organizations on the following aspects:

a. Renewing of map printing technology;
b. Introduction of GPS technology;
c. Compiling information system for computer aided mapping technology.

We expect a decision of this conference on sending various experts and advisers through exchange programmes to developing countries, like Mongolia, in the field of surveying and mapping.

SUMMARY

Economically, Mongolia is an agricultural country with a traditional open pasture for domestic animals. Surveying and mapping service is one of the young government and science branches, originated according to the needs of the country's social and economic development. Today our government pays a considerable attention to this branch and funds its mapping service while the country's economy meets with timely obstacles. During the country's transition to the marketing system, the national geodetic service (organization) of Mongolia has certain difficulties on carrying out of its main tasks on the following items of

-economic potential and its favourable condition;
-main technology and techniques of mapping;
-training of specialists at the present level.

However, many kinds of assistances and aid of international organizations, countries and people of goodwill encourage us in the time of decisive progress of our country's democratic way of development.